

In the specification, please amend the following paragraphs as shown:

Paragraph at page 2, lines 18-31:

Furthermore, the inventors of the present invention investigated the composition of dispersing agent of metal fine particles, dispersing stability of said fine particles and photo-reactivity concerning photo-reactivity of dispersion of metal fine particles in cases when 1-dodecanethiol is used alone as a surface decorative compound of said metal fine particles and when from 5 to 10% of said 1-dodecanethiol is substituted by diols [$\text{SH}(\text{C}_6\text{H}_{12})\text{SH}$, $\text{SH}(\text{C}_{10}\text{H}_{20})\text{SH}$] and reported that the dispersion of metal fine particles with high photo-reactivity can be obtained when 10% is substituted by $\text{SH}(\text{C}_6\text{H}_{12})$ [abstract of 38th Chemical Society Kyushu forum; number 1.46: Fixing of surface decorative gold nano particles by pulse laser irradiation, Effect of dithiol decorative (July 19, 2001) Document 1, Photochemical forum of 2001, 50th academy of Japan Chemical Analysis Society, p129, presented at 20th Solid-Surface chemical forum p133] .

Paragraph at page 4, line 18 to page 5, line 4:

The present invention is (1) a method to fix metal fine particles on surface of a substrate by desired fine structure corresponding to an irradiation of low power and/or low density electromagnetic wave comprising;

~~releasing a part of (a) adding metal fine particles stabilized by~~
~~a dispersion stabilizer locating on the surface of metal fine~~
~~particles by irradiating which can be released by irradiation of~~
~~high energy electromagnetic wave and/or high energy density~~
~~electromagnetic wave to a colloidal dispersion of metal fine~~
~~particles prepared from a solution containing a compound which~~
~~does not have bonding ability to the dispersing agent and/or~~
~~metal fine particles with the dispersing agent and/or compound by~~
~~substituting a part of the dispersing stabilizer, wherein, said~~
~~dispersing agent is which is~~ released by irradiation of lower
energy electromagnetic wave and/or lower energy density
electromagnetic wave ~~from the surface of~~ and/or a compound which
does not have bonding ability to the metal fine particles
~~stabilized by to prepare a colloidal dispersion of metal fine~~
~~particles which are part of the dispersion stabilizer, which can~~
~~be released by irradiation of the high energy electromagnetic~~
~~wave and/or high energy density electromagnetic wave, and being~~
substituted with the dispersing agent and/or the compound,
~~a process to irradiate said (b) irradiating~~ high energy
electromagnetic wave and/or high energy density electromagnetic
wave ~~which generate to said prepared colloidal dispersion to~~
release a part of the dispersion stabilizer locating on the
surface of metal fine particles which are and generate a
dispersion of metal fine particles which is activated so as to
cause flocculation of 2-100 times larger to the original particle

size ~~to~~ and to improve photo sensitivity of the metal fine particles stabilized by said dispersion stabilizer, and irradiating lower energy electromagnetic wave and/or lower energy density electromagnetic wave to said metal fine particles dispersion whose photo sensitivity is improved by activation.

Paragraph at page 5, line 34 to page 6, line 7:

Fig.1 is a drawing to illustrate a theory of fixing of metal nano particles by 2 steps irradiation of the present invention. (c) metal nano particles fixing pattern (MI) is formed. (a) is the activation process (AS) of particles in solvent by irradiation of high intensity pulse light (~~pres~~ said second harmonic generation (SHG) laser (532nm), 10Hz, 33mj/pulse) from high intensity light source HLS, and (b) is the fixing process (FS) by irradiating patterned light (~~pre~~ said 7mJ/pulse) through a mask MS using low intensity light source LLS, then (c) metal nano particles fixing pattern (MI) which is micro alloyed is formed.

Paragraph at page 7, line 18 to page 8, line1:

In the case of gold fine particles prepared by above mentioned method, the gold fine particles are dispersed into dispersion in which dodecanethiol, which is a dispersion stabilizer, and a compound which does not have dispersing ability releasing from the surface of said metal fine particles by

irradiation of small and low energy electromagnetic wave and/or bonding ability so as to make possible to substitute a part of dodecanethiol, which is adsorbed to the surface of fine particles after prepared with said compound. In a case when the compound to be substituted is 1,6-hexanedithiol or cyclohexanethiol, the substitution of only 5% of dodecanethiol, the dispersing stability is not spoiled. As the other compounds of said compound, it is effective to substitute with a compound which absorb light such as various pigments which improve the photo-reactivity of metal nano particles, especially, with a pigment which releases easily from the surface of particles by the photo reactivity of pigment itself. However, even if a compound which does not absorb the irradiated light (electromagnetic wave) e.g. above mentioned dithiol compound or cyclohexanethiol, make dispersion stability in solution of metal fine particles remarkably deteriorate, for example, the fixing effect by by lower energy electromagnetic and/or lower energy density electromagnetic wave can be remarkably improved by substitution of approximately 10%.

Paragraph at page 8, line 36 to page 9, line 7:

The ~~part to which~~ particles are fixed can be patterned by irradiating the light for fixing through chrome vapor deposition mask. Since by using coherent CW laser a refraction pattern generator can be used for patterning of particles fixation, more

convenient patterning of particles fixation is possible. It is possible to use high intense pulse laser which is used for activation of particles for patterning of fixation as it is, however, since it damages to the mask, an expensive device which scans high intense laser beam spatially is needed.

Paragraph at page 10, lines 11-36:

~~Soaked~~ Said substrate soaked into DTAu (colloidal solution 1) or HDAu (colloidal solution 2) contained in a glass cell (20×10×5mm) and SHG laser (532nm, 10Hz, 33mJ/pulse) of Nd-YAG laser (product of Continuum Co., Ltd., Surelite I) was irradiated [Fig.1; (a) shows the activation process (AS) of particles in solution by high intense pulse light (HLS) irradiation from high intense light source HLS (in this case, same laser was used and intensity was changed), (b) shows the fixation process (FS) by low intense pulse light which is patterned through mask (MS) from low intense light source LLS, and (c) shows micro alloyed metal nano particles fixed pattern (MI)]. Ultraviolet and visible ray absorption spectrum of gold fixed on a substrate was measured by a multi channel spectrometer (Ocean Optics, S1024DW). Then the cover glass was soaked into aqua regia so as to dissolve the gold fixed on the surface, and quantitated the fixed gold using ICP. MS (Yokokawa Analytical Systems PMS2000). Further, the surface of the substrate on which

gold fine particles are fixed is observed by SEM (Hitachi S-5000). Difference of the amount of fixation between DTAu (colloidal solution 1) and HDAu (colloidal solution 2) are shown in Fig.2. By the observation of Fig.2, it becomes clear that HDAu can fix more quantity of gold than DTAu, by same irradiation energy. SEM observation of the fixed DAu particles is shown in Fig.3. In comparison with DTAu, it is obvious that particles of larger particle size are fixed, and it is understood that the diol substitution effects to the size of fixed particles (Presented at 2001 Photo Chemical Forum, 50th Convention of Japan Analytical Chemistry Society, 20th Solid Surface Photochemical Forum). In this case, the damage of a mask is not recognized by observation by naked eyes or by a microscope.